

LAPONITE-XLS XR

Synthetic Layered Silicate Thickener for Water Phases in Cosmetic Applications

Product Data

INCI Name

Lithium Magnesium Sodium Silicate (nano) (and) Tetrasodium Pyrophosphate

Product Description

LAPONITE-XLS XR is a synthetic layered silicate of low heavy metal content, incorporating an inorganic polyphosphate dispersing agent. It hydrates and swells in water to give clear and colorless colloidal dispersions of low viscosity known as sols. LAPONITE-XLS XR is recommended for incorporation into formulations containing low levels of free water, such as skin wash products. At 10 % concentration in deionized water, the dispersion will remain free-flowing for over 24 hours. The unique shear thinning and thixotropic rheology of LAPONITE-XLS XR improves the skin feel of personal care products. Formulations will have a light, non-sticky texture. LAPONITE-XLS XR enhances stability of formulations and keeps particles, pigments or solid actives suspended. LAPONITE-XLS XR has been sterilized by gamma irradiation.

Typical Properties

The values indicated in this data sheet are typical and do not constitute specification limits.

Appearance:	Free flowing, white powder
Surface Area (BET):	330.0 m ² /g
Loose Bulk Density:	1000.0 kg/m ³
pH Value:	9 - 11
Moisture:	max. 10.0 %
Sieve Analysis +250 µm:	max. 2.0 %
Sol Stability (24 h), as Sol:	max. 50 cp
Dispersion Rate:	max. 30
Clarity:	max. 20
Lead (as Pb):	max. 5 mg/kg
Arsenic (as As):	max. 1 mg/kg
Bacteria Count:	max. 10 cfu/g

Recommended Use

Used for imparting a shear sensitive structure to a wide range of personal care products.

Application areas:	Personal Care:	Cream and Lotion Sunscreen Product Depilatory Cream Bath and Shower Gel Anti-dandruff Shampoo
	Color Cosmetics:	Liquid Make-up Foundation Liquid Eyeliner Mascara

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Incorporation and Processing Instructions

Recommended laboratory mixing equipment is a mechanical stirrer fitted with a propeller blade.

Add LAPONITE-XLS XR to deionized water (at 15 – 25 °C) in a steady stream over 10 - 30 seconds with rapid agitation. Mixer speed should be high enough to produce a vortex that will cause the stream of LAPONITE powder to wet out into the water without the formation of clumps. Mixing should be continued for up to 20 minutes. When dispersion is complete, LAPONITE-XLS XR produces a clear, colorless and low viscosity pre-mix, which can be stored for several days.

Viscosity development will occur instantaneously when the pre-mix is combined with other formulation components. Note that the viscosity of the LAPONITE-XLS XR pre-mix can be affected by temperature, electrolytes or pH level. Recommended agents are citric acid, lactic acid or sodium dihydrogen phosphate.

LAPONITE-XLS XR is also effective for use in hard water. The inorganic phosphate dispersant added to the product is an effective sequestrant for Ca²⁺ and Mg²⁺ ions.

Recommended Levels

Use levels in a formulation are highly dependent upon the composition of the formulation and can range from 0.1% up to 5%. LAPONITE products are very commonly used in synergistic combinations with polymeric co-thickeners, including xanthan gum, CMC, HASE, etc. These combinations will often allow the formulator to reduce total thickener levels required to produce a stable product.

These levels are suggested as a guideline; optimum levels can be determined by laboratory tests.

Special Note

LAPONITE-XLS XR is not compatible with cationic compounds. Recommended agents for pH adjustment to lower the pH are citric acid, lactic acid or sodium dihydrogen phosphate. To increase the formulation pH, sodium hydroxide can be used. LAPONITE-XLS XR is a weak base and will often cause formulation pH to rise to >6.5 within 24 hours. This effect can be overcome by making the initial pH adjustment to a value below the target equilibrium pH level of the finished product.

LAPONITE-XLS XR is compatible with up to 40% ethanol solution. In synergistic combinations with co-thickeners, LAPONITE-XLS XR can be used in formulations containing >60% ethanol.

Storage and Transportation

LAPONITE-XLS XR is hygroscopic and should be stored under dry conditions, in original packaging.

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